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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,212	02/17/2004	Timothy F. Myers	200309219-1	1943

22879 7590 12/14/2005

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EXAMINER	
KEANEY, ELIZABETH MARIE	
ART UNIT	**PAPER NUMBER**
2882	

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,212	MYERS ET AL.	
	Examiner	Art Unit	
	Elizabeth Keaney	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-17 and 24-40* is/are rejected.

7)☒ Claim(s) *2,3 and 18-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,4-8,15-17 and 24-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US Patent Application Publication 2002/0167001; hereinafter Chen).

Re claims 1,36,37,38 and 40: Chen discloses, in figure 2 and throughout the disclosure, a photonic assisted emitter, comprising:

- an at least partially transparent electron source layer (10; paragraph 32, lines 4-6),
- a thin metal layer (14), and

- a tunneling layer (20) disposed between the at least partially transparent electron source layer and the thin metal layer.

The Examiner notes that the at least partially transparent electron source layer could also be interpreted as (14) and the thin metal layer could be interpreted as (10).

Re claim 4: Chen discloses, in figure 2 and throughout the disclosure, the tunneling layer (20) disposed on the at least partially transparent electron source (10).

Re claim 5: Chen discloses the tunneling layer comprising nodular silicon (paragraph 19, lines 5-11).

Re claim 6: Chen discloses the tunneling layer having a thickness of between about 200 and 1000 Angstroms (paragraph 19, lines 12-14).

Re claim 7: Chen discloses the tunneling layer having a thickness of about 1,000 Angstroms (paragraph 19, line 12).

Re claim 8: Chen discloses, in figure 9 and throughout the disclosure, an oxide layer (78, paragraph 33, line 3-4) disposed on the tunneling layer (20).

Re claims 9 and 10: Chen discloses the oxide layer having a thickness between about 50 and 200 Angstroms (paragraph 33, lines 4-5).

Re claim 15: Chen discloses the thin metal layer comprises platinum (paragraph 19, line 20).

Re claim 16: Chen discloses the thin metal layer having a thickness of between about 20 and 120 Angstroms (paragraph 19, line 22).

Re claim 17: Chen discloses the thin metal layer having a thickness of about 100 Angstroms (paragraph 19, line 22).

Re claim 24: Chen discloses, in figure 4 and throughout the disclosure, an integrated circuit, comprising:

- a plurality of emitters (100) as defined by claim 1; and
- control circuitry (72) connected to the plurality of emitters.

Re claim 25: Chen discloses, in figure 2 and throughout the disclosure, a device making use of emissions, the device comprising:

- an emitter (50) as defined by claim 1; and
- a target (30), the emitter and the target being arranged to direct the emissions from the emitter towards the target to cause an effect on the target.

Re claim 26: Chen discloses the target comprises one of a memory medium or a display medium (paragraph 28, lines 1-3).

Re claim 27: Chen discloses, in figure 2 and throughout the disclosure, a focusing means (28) positioned between the target (30) and the thin metal layer (14).

Re claim 28: Chen discloses the focusing means comprises an electrostatic focusing lens having an aperture in a conductor settable at a conductor voltage, the conductor voltage being adjustable to change the focusing effect of the focusing lens (paragraph 23, lines 1-21).

Re claim 29: Chen discloses the target comprises a memory medium, and wherein the effect comprises a phase change, the phase change being detectable through measurement of electrical properties of the memory medium (paragraph 28, lines 1-24).

Re claim 30: Chen discloses further comprising a mover connected to one of the electron source or the memory medium (paragraph 28, line 9).

Re claim 31: Chen discloses the target comprising a display medium having a plurality of pixels, and wherein the effect comprises a visual change in one of the pixels (paragraph 27, lines 1-14).

Re claim 32: Chen discloses, in figure 7 and throughout the disclosure, an emitter device comprising:

- a plurality of emitter (100) as defined by claim 1 arranged in an array of emitters;
- a memory medium (58);
- a plurality of focusing lenses (28) arranged to cooperate with the array of emitters, each of the focusing lenses being configured to focus electrons emitted from one of the plurality of emitters and direct the focused electrons towards the memory medium, the focused electrons causing a structural phase change in the memory medium upon impact; and
- a reader circuit (62) for detecting the structural phase change in the memory medium through measurement of electrical properties of the memory medium.

Re claims 33,34 and 35: Chen discloses the tunneling layer is a layer formed from a material selected from the group of materials consisting of TaO2, SiC, SixNy (paragraph 39, line 3).

Re claim 39: Chen discloses, in figure 2 and throughout the disclosure, a method for enhancing electron tunneling in an emitter, the method comprising the steps of:

- applying a voltage (24) across a tunneling layer (20) disposed between a conductive at least partially transparent electron source layer (10) and a thin metal layer (14); and
- illuminating a surface of the tunneling layer with photons through the conductive at least partially transparent electron source layer.

Claims 1 and 11-14 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Chen et al. (US Patent Application Publication 2003/0160557; hereinafter Chen).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Re claim 1: Chen discloses, in figure 2 and throughout the disclosure, a photonic assisted emitter, comprising:

- an at least partially transparent electron source layer (10; paragraph 64, lines 4-6),
- a thin metal layer (14), and

- a tunneling layer (20) disposed between the at least partially transparent electron source layer and the thin metal layer.

The Examiner notes that the at least partially transparent electron source layer could also be interpreted as (14) and the thin metal layer could be interpreted as (10).

Re claim 11: Chen discloses the thin metal layer comprises a porous thin metal layer having nanohole openings (paragraph 33, lines 2-3).

Re claim 12: Chen discloses a diameter of the nanohole openings to be between 1 and 100 nanometers (paragraph 35, line 15).

Re claim 13: Chen discloses the nanohole openings being uniformly distributed on average but randomly spread across the surface of the porous thin metal layer (paragraph 35, lines 20-22).

Re claim 14: Chen discloses the porous then metal layer has a porosity of at least 12.5% (paragraph 86, line 8).

Allowable Subject Matter

Claims 2,3 and 18-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Re claims 2 and 3: The best prior art of record discloses a photonic assisted emitter comprising many of the features of claim 2, including an at least partially transparent electron source layer. However, the prior art fails to teach or fairly suggest a photonic assisted emitter wherein the at least partially transparent electron source layer comprises an optically transparent metal oxide, as claimed in claim 2. Claim 3 is allowable by virtue of its dependency.

Re claims 18-23: The best prior art of record discloses a photonic assisted emitter comprising many of the features as claimed in claim 1, including a transparent conducting layer. However, the prior art fails to teach or fairly suggest a photonic assisted emitter further comprising a light emitting layer, wherein the transparent conducting layer is disposed on the light emitting layer, as claimed in claim 18. Claims 19-23 are allowable by virtue of their dependency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday,Tuesday,Thursday,Friday 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EMK

Elizabeth Keaney
Examiner
Art Unit 2882

EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER